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CHINA'S MILITARY POTENTIAL

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FOREWORD

This monograph provides an appraisal of the ability of the People's Republic of China (PRC) to build a credible military force in the 21st century. The author, Colonel Larry M. Wortzel, examines a complicated set of factors, which when taken together, equates to potential military power in China's case.

Perhaps foremost among these factors is the PRC's current economic success and whether Beijing can transfer it to the military sphere. Colonel Wortzel concludes that China could become a military power in every sense, but the greater likelihood is that the PRC will be overcome by internal problems. Nonetheless, the growth in China's military potential bears careful watching by U.S. military planners.

DOUGLAS C. LOVELACE, JR.
Acting Director of Research
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BIOGRAPHICAL SKETCH OF THE AUTHOR

Colonel Larry M. Wortzel assumed the duties of Director of the Strategic Studies Institute in June 1998. From December 1997 to May 1998 he was Director of Asian Studies at the U.S. Army War College. Colonel Wortzel is a Military Intelligence Officer and Foreign Area Officer concentrating on China and East Asia. He earned a Ph.D. in Political Science from the University of Hawaii in 1984, and attended the National University of Singapore in 1982-83. Colonel Wortzel served as Assistant Army Attaché in China from 1988 to 1990 and Army Attaché in China from 1995 to 1997. Colonel Wortzel was commissioned from Infantry Officer Candidate School in 1973 and attended the Airborne and Ranger courses. He served in infantry battalions for 4 years as a Platoon Leader, Detachment Commander, and Battalion S-4. As an intelligence officer he has served in the Office of the Secretary of Defense (1984-88), the U.S. Army Intelligence and Security Command, the U.S. Pacific Command, and on the Department of the Army Staff. Colonel Wortzel is the author of three books, *Class in China: Stratification in a Classless Society* (Greenwood Press, 1987), *China's Military Modernization* (Greenwood Press, 1988), and *Contemporary Chinese Military History* (Greenwood Press, forthcoming). He is also the author of several articles on China and Asian regional security issues, including "China Seeks Traditional Great Power Status," *ORBIS* (Spring 1994), and *Asian Security without an American Umbrella* (U.S. Army War College, 1996).

SUMMARY

The People's Republic of China (PRC) is seen by many as an economic powerhouse with the world's largest standing military that has the potential to translate economic power into the military sphere. As one of the elements of power, a nation's military potential is based not only on its capability to defeat an adversary, but also its ability to coerce and exercise influence.

China's standing armed force of some 2.8 million active soldiers in uniform is the largest military force in the world. Approximately 1 million reservists and some 15 million militia back them up. With a population of over 1.2 billion people, China also has a potential manpower base of another 200 million males fit for military service available at any time. In addition to this wealth of manpower, China is a nuclear power. It has enough megatonnage, missiles, and bombers to hit the United States, Europe, its Asian neighbors, and Russia. Notwithstanding the recent detargeting announcement between China and the United States, that does not change China's capability to hold Los Angeles or other U.S. cities hostage to nuclear threat.

China is also an economic power of considerable strength. The PRC's economy quadrupled in the 15 years up to 1995. The latest World Bank report on its economy, *China 2020*, indicates that China's gross domestic product (GDP) increased at a rate of between 6.6 percent and 8 percent annually between 1978 and 1995. And China has foreign exchange reserves of about U.S.\$140.6 billion, primarily from foreign direct investment.

For China's leaders, the economy is the most important factor determining future military power. The director of the political department of the People's Liberation Army's (PLA) Guangzhou Military Region described national power as a combination of economic strength and the "level

of defense modernization." Chinese leaders believe that economic growth will stagnate if resources are poured into military modernization at the expense of broader economic development.

There are many serious problems for China's leaders to confront if they are to maintain healthy economic growth. Among the issues are an aging population, state owned enterprises (SOE) operating at a loss (50 percent), potential labor unrest, and potential financial crisis.

If China is to continue on its current path of economic integration, the central leadership must remain linked to the international economy. It also means that domestic stability must be ensured because no foreign country or banking house will invest in an unstable political environment. When Chinese military and civilian leaders claim that their priority is economic growth and stability, they mean it; the primary mission of the PLA and the People's Armed Police (PAP) is internal security and stability. To a large extent, the PLA has had to postpone its mission of external defense. In the short term, Beijing is distracted from a serious military buildup by problems that are resource-demanding. At this stage, and aware that the collapse of the Soviet Union occurred when Moscow attempted to win the arms race against the West, the PLA is prepared to remain under-resourced. To compensate, China's military leaders are working to develop the capability to control sea lines of communication, project regional force, and deter the United States and other potential adversaries in creative ways without matching forces.

CHINA'S MILITARY POTENTIAL

The People's Republic of China (PRC) is seen by many as an economic powerhouse with the world's largest standing military that has the potential to translate economic power into the military sphere. As one of the elements of national power, a nation's military potential is an abstract value. It is based not only on its capability to defeat an adversary, but also its indirect ability to coerce and exercise influence. Potential military power is derived from a complicated set of factors including the numbers and types of forces; level of economic development; technological characteristics of weapons and equipment; discipline; morale; training; combat experience; command, control and leadership; geography; industrial capacity; national resources; and the national will to apply power.¹ If this power is not applied, it is of no value.² Any consideration of the future military potential of a power like China, therefore, is serious business that requires a cold, sober assessment of the likelihood that, if Beijing's economic success continues, it will be translated into improvements in the military sphere.³ This monograph will touch on a few of these factors in an attempt to characterize the likely military potential of China in the 21st century.⁴

China's standing armed force of some 2.8 million active soldiers in uniform is the largest military force in the world. Approximately 1 million reservists and some 15 million militia members back them up. This manpower alone makes the PRC a very significant military power. With a population of 1.2 billion people, China also has a potential manpower base of another 200 million males fit for military service available at any time. In addition to this wealth of manpower, China is a nuclear power. While some may classify China's strategic nuclear forces as "minimal," Beijing has enough megatonnage, missiles, and bombers to hit the United States, Europe, China's Asian neighbors, and

Russia.⁵ Notwithstanding the July 1998 de-targeting announcement between the United States and China, that does not change China's capability to hold Los Angeles or other U.S. cities hostage to nuclear threat.⁶

China is also an economic power of considerable strength. The PRC's economy quadrupled in the 15 years before 1995. According to the latest World Bank report on its economy, *China 2020*, China's gross domestic product (GDP) increased at a rate of between 6.6 percent and 8 percent annually between 1978 and 1995.⁷ And China has foreign exchange reserves of about \$123 billion today, primarily from foreign direct investment in the Chinese economy.⁸

There is a continuum of viewpoints regarding China's future. From an alarmist perspective, some analysts predict that China's size and economic power will necessarily lead to a clash between Chinese and American interests in the future. The most alarmist of these writers, Richard Bernstein and Ross Munro, are convinced that China is on the way to "Asian hegemony" so that "no country in the region . . . will act without taking China's interests into prime consideration."⁹ David Shambaugh, in an article in *The Korean Journal of Defense Analysis*, presents a different argument.¹⁰ Using a linguistic "deconstruction analysis" of the Chinese term for hegemony (*Ba Chuan*), Shambaugh analyzes its "archaeology," to paraphrase Michel Foucault. Shambaugh argues that China is not a hegemonic state. He shows a sophisticated understanding of the Chinese language in his argument. However, this linguistic deconstruction of the Chinese term for hegemony means nothing to those countries that are directly threatened by China's military might. Mongolia, India, Vietnam, and the various other claimants to the Spratly Islands, Taiwan, Philippines, Malaysia, and Burma understand very well what hegemony means. It is the ability to coerce and exercise influences based on the capability to back policy up with force, and China is a hegemonic power for these states and territories.¹¹

Francis A. Lees, in a 1997 book on China, argues that four factors are present that make China a superpower now: "a large, diversified national economy; a major conventional military force; a strategic nuclear arsenal; and a strategic geographic location."¹² Lees is wrong in my view. China is not a superpower. The PLA's conventional military force cannot project itself beyond China's periphery; the economy is fragile; the location is geostrategic in a continental sense, but regionally and in a global sense only if China can project sufficient naval force; and the nuclear arsenal is a minimal deterrent. Lees really gets at the potential for becoming a superpower; his argument that China is a superpower is not accepted by many of those who "watch China."

Gerald Segal, a veteran Sinologist, for instance, argues in the April 17, 1998, edition of the *New Statesman* that China is not an important country. It is a "fragile state," according to Segal, that can't project its power and may not be able to do so for a "decade or two."¹³ American military planners and strategists think in longer terms than Segal. They look 25 to 30 years out, covering roughly the same time frame as this monograph.¹⁴ Even without a "cold war," the potential for a clash of interests between the United States and another projected "superpower" such as China leads to forecasts, which translate into plans, strategies and requirements for military equipment and manpower. These analyses are part of the national force building process in the United States.

NATIONAL STRATEGY: BUY TIME, STRENGTHEN THE ECONOMY, BUILD POWER

For China's leaders, the economy is the most important factor determining future military power. This approach is not surprising from a country that is ruled by a communist party. In the Chinese Communist Party's publication, *Qiu Shi*, the director of the political department of the PLA's Guangzhou Military Region characterized the components of national power as a combination of economic strength and the "level of defense modernization" (*guofang xiandaihua*

*shuiping).*¹⁵ The emphasis on economic strength as a basis for future defense modernization accounts for the relative prioritization of military modernization as the last among the now-formulaic "four modernizations."¹⁶ Chinese leaders believe that if resources are poured into military modernization at the expense of broader economic development, it will lead to stagnation and a form of economic growth that is not sustainable. The Chinese President, Communist Party Chairman, and Central Military Commission Chairman Jiang Zemin (in his address to the Communist Party's 15th Congress) also reflected this prioritization. Jiang made it clear that the focus will be on the "economic, scientific and technical" sphere rather than concentrating on strengthening China's military power.¹⁷ This strategy was confirmed in the second defense white paper by China, *China's National Defense*, published on July 27, 1998, in Beijing. China's large population, its lack of arable land, its dwindling energy resources, and the burdens of supporting an aging population from state resources require greater attention to the problems of economic development over military strength and modernization. **Beijing's strategy, therefore, is to buy time for increasing China's military potential, which is slowly improving its capacity to be a stronger military power.**

Economic Issues.

Chinese leaders face many serious problems if they are to maintain any economic growth. For instance, according to the *Far Eastern Economic Review*, the ratio of the elderly population dependent on working adults or the government to support them will rise from 11 percent in 1990 to 22 percent in 2025.¹⁸ That increase places serious limits on how much money the PLA can count on for its modernization. The plight of the more than 300,000 state-owned enterprises (SOEs) also represents a serious financial burden on China's economy, one that will affect the military. These SOEs, of which about a third are industrial, employ (really they "*under-employ*") more than 100 million

workers.¹⁹ They are operating at a loss of about 1 percent of China's GDP each year (in 1996, 50 percent of the state-owned enterprises in China operated at a loss). Many industrial workers are being paid in kind and told to sell what they have produced on the open market; in other cases, workers are paid only part of what they are owed. Worse still, at some enterprises, the workers are simply told to go out and find another job, while they are allowed to keep their factory-owned houses. This represents a huge burden on the Chinese economy. The problem of underemployment and bankruptcy in state-owned enterprises is critical because it limits the amount of funds China is able to devote to military modernization.

The potential for labor unrest is high, and may be one of the most volatile problems to confront the Chinese leadership and the PLA.²⁰ The one million-plus soldiers and officers in the reserve forces of China's military are primarily in state-owned enterprises of one form of another. For example, Beijing's Capital Iron and Steel Company (*Shougang*) and Shanghai's Baoshan Iron and Steel each incorporate a division-sized reserve unit. In northeast China, not far from the North Korean border, the rubber tire plant in Mudanjiang, which has operated there since before World War II, contains its own reserve division. These are really light infantry divisions of 8,000-10,000 soldiers armed with small arms, machine guns, and artillery. Some reserve divisions also have tanks and armored personnel carriers. The specter of several such divisions turning against the government has to be a frightening one for China's central political leadership and is a strong incentive for sustaining the flow of funds into SOEs.²¹

Another volatile problem facing the central government is China's "floating population" of under-employed or unemployed rural labor, numbering 100-120 million people.²² Ian Johnson, writing in *The Wall Street Journal*, notes that a recent Chinese government survey indicates that 43 percent of China's population live in cities; whereas, only about 20 percent of the population were urban when

serious economic reforms began about 20 years ago in 1978-79.²³ Most of these workers making up the floating population are male; many have some form of military training, either as militia or regular forces. The floating population migrates into cities and works on construction projects or as day laborers, performing jobs that the more well-to-do urban residents shun. The laborers return to the countryside from time to time or else send funds back to their families. The importance of keeping this group actively employed through continuous urban construction projects is as obvious to the central leadership as it is a burden on the economy.

China also faces the potential for a financial crisis of serious magnitude. The centrally controlled banks of China and the government have been subsidizing state-owned enterprises with loans to prevent their collapse. Up to 90 percent of all loans granted to enterprises by state banks in 1996 went to SOEs, but these enterprises produce less than 40 percent of China's industrial output. By the end of 1996, according to the World Bank, the debt to the banks from these enterprises was about \$120 billion, almost equal to China's foreign reserves.²⁴

The wage bill of state-owned industry is roughly equal to the amount of direct foreign investment that comes into China each year, and the debt of state-owned enterprises is roughly equal to China's foreign reserves.²⁵ Clearly, if China is to continue on its current path of economic integration, the central leadership must remain linked to the international economy. It also means that domestic stability must be ensured because no foreign country or banking house will invest in an unstable political environment. When Chinese military and civilian leaders say that their priority is economic growth and stability, they mean it; the primary mission of the PLA, and the People's Armed Police (PAP) that it largely controls, is internal security and stability.

Still, the Chinese military is modernizing. Beijing is spending its money carefully on military items. China has purchased Su-27 fighter aircraft from Russia, Kilo-class submarines, destroyers, and, through intermediaries, two aircraft carriers, the *Varyag* and the *Minsk*, as models to reverse engineer.²⁶ To a large extent, however, the PLA is "distracted" from its mission of external defense and a serious military buildup by significant problems that eat up a lot of resources. The PLA can live with fewer resources because it saw what happened to the Soviet Union (total collapse), when Moscow tried to beat the West in an arms race. China's military leaders are very realistic, however. To compensate, they are working to develop the capacity to control sea lines of communication, project regional force, and deter the United States and other potential adversaries in creative ways without matching forces.²⁷

THE PEOPLE'S LIBERATION ARMY

The PLA is the collective term for the ground forces, strategic rocket forces, naval, and air forces of China. There are about 2.8 million active duty officers and soldiers in the PLA, but its total numbers can vary. Beijing has engaged in a game of "smoke and mirrors" over the strength of the PLA. When the Chinese government conducted a one million-man reduction in the PLA in the 1980s, the PAP grew by about 500,000 men to a current strength of 800,000. More recently, despite the announced troop reductions in the white paper Beijing issued on national defense, we have seen entire divisions of the PLA change uniforms and overnight become members of the PAP.²⁸ The PAP is a paramilitary organization controlled by the Central Military Commission of the Chinese Communist Party and the Ministry of Public Security.

The Continental Emphasis.

China is a continental power, a fact that is reflected in its massive ground force capability. For centuries, Chinese

leaders were concerned about consolidating their control over the populace on the Asian mainland. Historically China's leaders devoted little effort to naval expansion or maritime issues.²⁹ Of the 24 combat armies of the PLA, 17 are deployed in the north and northeast of China, positioned to defend the traditional invasion routes and to repel the traditional enemies China has faced—Russia from the north, and Japan and the Western powers over the Korean Peninsula and from the east. Most of the research and development money devoted to new weapon systems for the Chinese military is going to the air force and the navy, but two-thirds of the PLA is devoted to land power. That figure goes up to 75 percent if the light infantry divisions of the PAP are counted as part of the PLA. Beijing has the luxury of choosing whether to concentrate on defending its littoral waters, focusing on naval force projection in an effort to become a maritime power, or maintaining its continental orientation. Clearly, today China defines its military power through its Army.

Beijing's strategic orientation is important when making judgements about future potential. A nation will seek to develop military capabilities to defend what its leaders see as the important interests of the country. The current national strategy of China calls for the development of national strength through economic and scientific development. The main goal of China, according to the report by Jiang Zemin at the 15th Communist Party Congress, is to build a "socialist economy."³⁰ The challenge for Chinese leaders is to spread the primarily coastal economic development inland. Two ways China is doing this is to expand trade, telecommunications, and transportation from China's Sichuan and Guizhou Provinces southwest into Vietnam's northern highlands, Laos, and Burma; and to expand trade and commerce west through Xinjiang and into Central Asia.

At the annual Kunming Trade Show, for example, the small border counties and provinces of Burma (Myanmar), Laos, and Vietnam are heavily represented selling food-

stuffs, light industrial goods, and textiles to residents of Sichuan. Kunming, in fact, has become something of a hub for the economic development of the region. Boeing Aircraft Corporation, partnered with another U.S. firm, Flight Safety, has established a regional flight simulation center there, hoping to draw regional airline pilots there for training. These are positive steps that have the potential to contribute to the economic development of China and its neighbors. The old French-built rail lines into Laos and Vietnam are operating again, and road links are being developed. China's economic development and integration with Burma is also strengthening. The old World War II-vintage "Burma Road" has been expanded to a four-lane highway in some places and rail lines are being installed between Kunming and Rangoon. In addition, China is building a port complex in Rangoon to facilitate shipping. This outlet on the Bay of Bengal is designed to serve as the transshipment point for goods from south China.

In the west, to develop Xinjiang and to secure an alternative source of oil, China has agreed with Kazakhstan to develop and build a major oil shipment pipeline. Along with this pipeline, Beijing will improve the rail and road links to the west. Kazakhstan has the potential to become a new zone of competition among China, the European powers, Russia, and the United States. By 2010, China may require imports of as many as 7 million barrels a day of oil, some of which could come through the Kazakhstan pipeline. Investing in the oil fields there is a strategic move on China's part that will surely also include the installation of fiber-optic cable to improve telecommunications and control rail traffic.³¹ Central Asia is also something of an agricultural basin. Agriculture accounts for between 37 percent and 60 percent of the net material products of Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, and Uzbekistan. Although China today is self-sufficient in grain, the World Bank predicts that by the year 2020 China will need to import between 30 million and 90 million metric tons of grain annually. Good transportation links with countries

that have small populations, but an abundance of arable land like the Central Asian republics will be important in the future. Beijing plans to lay four oil and gas pipelines from Central Asia and Russia into China for a total cost of \$12.5 billion. China will build a 1,000-kilometer pipeline from the Uzen oil field in Kazakhstan through Turkmenistan and Iran to the Persian Gulf.³²

Clearly, China has launched a number of commercial trade activities that will simultaneously improve the regional military lines of communication. Once a nation develops vital economic interests in a region, by necessity it will factor those interests into its security equation and build a capability to secure and defend them. A careful reading of both Clausewitz and Sun Tzu will tell us this. It is simply a fact of history and geopolitics.

For the United States Army, these matters affect most seriously the U.S. presence in the Republic of Korea. With an infantry division stationed on the Korean Peninsula, U.S. Army planners and government policymakers must remain continually mindful of China's presence. Senior Chinese military officials have told American officers that, even in the event of a collapse of North Korea, neither the United States nor South Korea (ROK) should believe that China will simply sit back and watch the ROK and U.S. armies march north, approaching the Chinese border. Referring back to Chinese volunteers crossing the Yalu River in 1950, several Chinese military leaders have made it clear that China should be "consulted and involved" in any humanitarian operations in North Korea.³³

While China continues to insist that it may use force to reunite Taiwan and the Mainland, and makes veiled threats against U.S. forces in Korea, it would be foolhardy for the United States Army to engage in military-to-military exchanges that would improve the PLA's ability to project force. The manner in which China has used its army (and its PAP) as a force to repress popular movements and dissent, as during the Cultural Revolution and in the 1989 Tianan-

men Square demonstrations in Beijing, strains army-to-army contacts. Just as the U.S. Army must avoid increasing the capabilities of the PLA to project force against China's neighbors and Taiwan, it must remain sensitive to bilateral programs that improve the PLA's ability to repress the Chinese population. Chinese military leaders are also especially sensitive to U.S. exercises around China's periphery. When the 82d Airborne Division conducted an exercise with the Kazakh Army, dropping an airborne battalion into Kazakhstan, PLA leaders interpreted this as potentially hostile. The PLA is also wary of humanitarian missions in Mongolia, where China remains sensitive to U.S. military activities.³⁴

The Military Potential of the Ground Forces.

China's military strength lies in its ground forces, and, despite an antiquated military and a fragile economy, if China's military potential is likely to be realized anywhere, it is on the continent of Asia. The PLA of the future must have the potential to dominate and control terrain, lines of transportation and commerce, population centers, and populations in support of China's national interests.

PLA leaders are realistic about the resources they will probably get to improve their military capabilities. They realize that one-third of China's ground forces leave active duty each year, so they cannot count on a military composed of a large body of experienced professional soldiers who are well trained to handle sophisticated equipment. The PLA's leaders also realize that most of the soldiers who enter the army are peasants with a poor education. Therefore, conscious of their weaknesses, they are concentrating on what we would call "asymmetric warfare." This means that the PLA will not seek to match or mirror the forces of any potential adversary.³⁵ PLA leaders will also analyze how to use technology to complement its strengths. If only a third of the PLA is trained at any time, it will practice putting together smaller building blocks of forces, perhaps of

brigade instead of division size, that are fully trained. Instead of seeing fully digitized divisions, as is the goal in the United States, the PLA may build up smaller units of highly educated soldiers and officers to support main force armies. These "information/electronics/modernization" support units will probably be drawn from more educated urban recruits who serve longer careers. They will probably be trained to attack the command and communications systems of advanced armies. But every PLA Group Army may not require such a capability. The Group Armies that are to fight potential battles in Southeast Asia or Central Asia would not need as much "high-tech" equipment. Group Armies on the border with Korea, where there are still U.S. forces, and opposite Taiwan, may be structured differently.

The thinkers and strategists of the PLA have grasped the "intellectual side of military modernization." They have focused the war-fighting debate in China on limited technological improvements in areas like reconnaissance and sensor systems, electronic warfare and jamming, destroying enemy command and control systems with "logic bombs," and the use of short-range missile systems to attack an adversary.³⁶ This sophisticated modernization effort is designed to bring at least some of China's combat divisions to a world-class level.³⁷ The effort is modeled on what the Chinese military saw the United States do during the Gulf War; that is, to increase knowledge and awareness of the battlefield, to conduct simultaneous operations deep in enemy territory as well as along areas of contact, and to attack an enemy's key competencies and strengths without exposing one's own weaknesses. The other driving force for military modernization, the "manifest destiny" to reunite Taiwan and the Mainland by force if necessary, has led to other modernization plans.

Some skeptics will ask: "Can the PLA assimilate these techniques?" Between 1979 and 1983, after studying and working out the doctrines and concepts in the U.S. "Air-Land Battle" system, the PLA managed to transition from a force that could conduct only sequential, single-arm

(artillery, infantry, armor) operations, to a force that could conduct integrated, combined-arms operations on the battlefield. Then, after some experimentation on the use of helicopters, between 1984 and 1990, the PLA was able to successfully incorporate air-mobile (heliborne) operations into the tactics of some of its group armies. After watching the Gulf War and rethinking its doctrines again, between 1991 and 1995, the PLA began to grasp simultaneous operations in various forms of battle-space (air, undersea, sea surface, and space with missiles). The 1996 demonstrations of force against Taiwan showed what the PLA had accomplished. They used a force of ships, paratroopers, amphibious troops and marines, and aircraft in the exercises supported by sophisticated jamming and short-range ballistic missiles. Using its older platforms, type 69 and other Russian-derived tanks, the PLA integrated new laser range finders and night vision technologies into its ground force tactics. For limited numbers of divisions, and using limited assets, the PLA has demonstrated that it can incorporate new technologies and employ them on the battlefield.

At the August 1997 exhibition in the Military Museum in Beijing, designed to commemorate the 70th anniversary of the PLA, China teased observers with a limited view of what it would like to produce to improve the lethality and force projection capabilities of its military. On display were a combination of systems that, if mass-produced and fielded, would give the Chinese ground forces the ability to sustain forces away from bases of supply without relying on the old methods of "People's War" where combat forces were sustained by local militia. Included in the displays at the exhibition were significantly improved field mess (kitchen) systems to feed and sustain deployed troops; forward area refueling points for armored warfare and airmobile, or helicopter-borne forces; and the sort of sensor-to-shooter target acquisition systems that depend on remotely piloted vehicles linked to a sophisticated intelligence and communications architecture. Combined with global position-

ing satellites, these sensor-to-shooter systems would permit the PLA to target enemy forces in deeper battle space on a real-time basis with cruise missiles, ballistic missiles, or air strikes.

These improvements would permit the PLA to more effectively maneuver and support combat forces in such places as along the strategic lines of communications into Xinjiang, Central Asia, Vietnam and Burma. More importantly, the systems displayed would permit better sustainment and logistics for these forces and improved "battlefield awareness," something that was severely lacking in China's 1979 attack into Vietnam.³⁸

China's leaders may claim their intentions are peaceful and defensive; but if economic collapse threatens because of the loss of markets or resources on which China has come to depend, Beijing will use military force to defend its vital interests as quickly as it used military force to crush domestic political threats to regime survival in the Cultural Revolution, and in Tianamen Square in 1989. Beijing has acted responsibly to assist in securing regional stability on the Korean Peninsula. But where its vital interests were at stake, it gave Pakistan a nuclear and missile capability to be used against China's long-term rival for power—India. When it saw that Vietnamese forces were poised to crush the Khmer Rouge supported by China in Cambodia and threaten Thailand, China attacked Vietnam.

One cannot know just how advanced the PLA is in employing its force projection systems, but if the systems engineering and production capabilities of the Chinese national defense industries develop, the PLA will be a significantly more capable force, able to dominate Taiwan or other regional opponents. In the more open terrain of the steppes of Central Asia, the PLA could well have the type of forces that the United States fielded in the Gulf War against Iraq. Building that type of force is one of the goals of China's military leaders.³⁹

Maritime Potential.

China's territorial claims in the South China Sea require a navy that can sustain itself away from shore, air defenses, and air cover for the fleet. The gradual improvement of the naval forces of the Association of Southeast Asian Nations (ASEAN) has been severely retarded by the recent financial crisis there, but one country in Asia continues its methodical military buildup, annual increases in its defense budget, and serious purchases of foreign military equipment—China. Beijing continues to pursue maritime dominance. As in its policy toward Taiwan, Beijing has refused to foreswear the use of force to resolve territorial claims in the South China Sea. In fact, China's own territorial law charges the PLA with enforcing territorial claims in the South China Sea.

Beijing's interest in the waters around the Spratly Islands is not primarily for military significance. The energy resources and fishing rights in the area are Beijing's long-term targets. But the fact that major sea lines of communication pass near the Spratly Islands makes the potential for conflict there of strategic significance and a concern for the United States. Serious conflict could disrupt international shipping and commerce. China's maritime requirements drive the acquisition of modern aircraft and modern ships like the Russian *Sovremmeny* destroyers. The acquisition of an air-to-air refueling capability will give the PLA Navy the capability to support naval deployments in the Spratlys, while China is working to build its own aircraft carrier.

More seriously, Beijing's goal of uniting Taiwan with the Mainland is driving other military efforts aimed at deterring any decision to declare independence on Taiwan. Looking once more at the systems on display at the August 1997 Military Museum exhibitions, the PLA's efforts translate into the development of a logistics across the shore capability to support amphibious operations; better coordination of the use of airborne, special operating forces,

and amphibious forces; and the integration of air power and ballistic missiles to cripple Taiwan's transportation and communications infrastructure without committing ground forces. China learned about "stand-off operations" from watching the U.S. effort in the 1991 Gulf War. As for aircraft carriers, the former Soviet carrier reported to have been purchased through Macao will probably be a test bed for replication, while the PLA Navy uses the Russian carrier purchased for scrap from South Korea to master other design features. Beijing is working to develop the potential to project naval forces that can dominate parts of the Indian and Pacific Oceans.

Beijing's goals are regional domination and hegemony, not world conquest.⁴⁰ Beijing wants to ensure that no other Asian or Pacific state acts without having to consider China's potential response.⁴¹ The PRC is the dominant country on the Asian continent and seeks that dominance in the waters of Asia. At present, China's ships cannot sustain themselves at sea for extended periods. The ships are not designed to distill sufficient fresh water to sustain the crew at sea for extended periods. China can dominate the navies of the ASEAN states, but, despite the examination of aircraft carriers by the PLA Navy, there does not seem to be a naval construction effort underway that would give China the potential to decisively project sea power. On average, it has taken China approximately 15 years to develop and produce new classes of ships.⁴² By comparison, Japan just took delivery of four very capable amphibious assault ships produced at home in only 3 years. If China is to evolve into a major power at sea, its industrial system must mass-produce dependable, deployable systems at a faster rate.⁴³

Potential Air Power.

China has really produced only one indigenous combat aircraft that was not completely modeled after some Soviet design, the A-5 "Fantan" fighter-bomber. It is built with 1950s and 1960s design and incorporates old technology. It

took between 10-15 years to bring this aircraft from design to production.⁴⁴ However, China is actively pursuing the development of several air power capabilities, focusing on asymmetric means instead of completely matching the air forces of its neighbors or the United States. Rather than try to completely modernize its old airframes, Beijing is working with Italy to improve the radar and avionics of its F-8 (an upgraded MIG-21) to give the aircraft the capability to fire sophisticated air-to-air missiles and, if linked to other systems, to fire over-the-horizon cruise missiles. In the aviation field, also, the PLA is working to ensure that it has a modern military potential. With Russian and Israeli help, the PLA Air Force (PLAAF) is building airborne early warning aircraft utilizing radar that will vector aircraft over land and water, while providing radar data links to target air-to-air and air-to-surface missiles on Russian-provided fighters. In order to ensure better on-station time over the South China Sea and the Taiwan Strait area, the PLAAF is also working with our British and Israeli friends to develop and field an air-to-air refueling capability stand off attack.

Right now, the Chinese Air Force is able to equip a few of its aircraft with missiles copied from the French *Exocet*, the missile that did so much damage to the *USS Stark* in the Persian Gulf, the C-801 and C-802 air-to-surface and surface-to-surface missiles. But Beijing still lacks the capacity to do over-the-horizon targeting in order to employ the C-802 at its capability. If it purchases Russian Su-30s to complement its Su-27s, or gains the airborne early warning capability from an AWACS-like aircraft, the PLA gains this capacity. Although the PLA still cannot build terrain, contour modeling ground attack missiles like the U.S. *Tomahawk*, the PLA is very impressed with their performance. China's military leaders would like to be able to hit a target from 1,500 miles away, as they saw the United States do in Iraq, Sudan, and Afghanistan, and they are working to develop the capability.

ASSIMILATING NEW TECHNOLOGY

The evidence is mixed when attempting to assess whether the PLA and Chinese defense industries can assimilate new technology. Beijing needs medium technology components for its armored vehicles and has depended on foreign countries for the engines, transmissions, drive trains, and weapon sensor systems. But the PLA has yet to be able to develop an indigenous turbine engine-transmission system for its armored vehicles. Assistance from Germany, Great Britain, the United States (before 1989), Russia, and the Ukraine failed to help China's defense industries in this endeavor.⁴⁵ In May 1998, the PLA tried to get access to world-class, modern defense electronics by sponsoring a Defense Electronics Exhibition in Beijing. This show was the product of a 2-year effort originated in the Commission of Science, Technology and Industry for National Defense and the Electronic Warfare Department of the PLA General Staff Department. But it was delayed for almost 2 years from its conception by bureaucratic in-fighting among several SOEs and ministries in China. The experience of the planners for the Defense Electronics Exhibition demonstrates what may be the greatest impediment faced by China in incorporating new technology and developing new systems—the weight of its own bureaucracy and the seeming inability to change.⁴⁶

The best example of how China's management system and bureaucracy seem to defy change and innovation is probably in the book by former *The Los Angeles Times* correspondent to China, Jim Mann. In *Beijing Jeep*, Jim Mann documents the problems in quality control and management encountered by the Jeep Corporation in establishing a joint venture to assemble kits in China.⁴⁷ Simple assembly line processes and quality control are alien concepts to Chinese managers. Even today, years after the Jeep plant in China began operation, one can still see newly assembled Jeep Cherokees all over China with doors hung

improperly and that don't close flush. China still makes a motorcycle from the same assembly line that produced the 1937 BMW used by the German Army in World War II. But all Chinese that operate the motorcycles will advise that one should buy a used rather than a new one because the bearings invariably go bad within the first 1,000 kilometers of use.

Examples more relevant to the defense sector can be found in China's attempts to develop a new destroyer using General Electric LM 2500 gas turbine engines. The ships were designed and partially built before Chinese naval engineers discovered that they had designed engine spaces too small to accommodate the engines.⁴⁸ A 1989 visit to the Changxindian Armored Vehicle Plant south of Beijing by the U.S. Defense Science Board was also revealing. Despite the presence of modern, four-axis milling machines in the plant, Chinese workers were carefully filing and milling cylinders and bearings for armored personnel carriers by hand. When one U.S. industrial engineer, through an interpreter, asked a workman why the automated machinery wasn't used, the worker responded that he had been trained by his own father to do the work by hand. The automated equipment had never been used.

Perhaps the most relevant examples of the seeming inability of the Chinese industrial bureaucracy to accommodate change and innovation is that provided by a U.S. manager from a major aerospace corporation who deals regularly with three Chinese aircraft companies. Although the Chinese workers are able to master good sub-assembly processes on parts for the United States, they require continuous supervision by Western quality assurance specialists. According to the U.S. corporate manufacturing representative, the fear of failure by Chinese engineers and workers prevents them from developing any product improvement ideas. Chinese engineers and workers will duplicate anything they are given, but won't innovate or create. This fear of innovation, according to the American, stems from the system of criticism and punishment by

Communist Party organizations built into the Chinese corporate structure in SOEs.⁴⁹ Part of the problem with Chinese manufacturing, according to the U.S. aircraft corporation representative, is that industrial management in China still relies on 1950s Soviet styles. This involves "batch building" a full order of aircraft in advance based on a state-planned and dictated order for parts and materials. As a consequence of this system, there are no direct lines of accountability for quality control, and no cost-cutting discussions or steps available to mid-level management. There is no competitive bidding for contracts, workers are redundant, and schedules continually slip because state planning doesn't have a fixed required-delivery date for products. If production is late, the state plan is simply revised. China's older engineers are so immersed in this system that they seem unable to change their ways. At the same time, according to this experienced observer, China's own cultural superiority keeps Chinese engineers from accepting change. Young managers stay risk-averse and are reluctant to change or improve on the system. The future of China's industry was painted as so bleak by the individual that I interviewed that he characterized China's aircraft industry as containing "pockets of adequacy, but no pockets of excellence."

Despite all of these problems, China is still working hard to build a powerful military. The implications of this effort for the United States are quite serious in the long term.

CAN THE CHINESE GET IT ALL TOGETHER?

The short answer is probably not! The greater likelihood is that Beijing will be overcome by the economic and internal problems China faces. Skeptics like Kenneth Allen, in his 1995 book on the Chinese Air Force for the Rand Corporation; Robert Ross, in his rejoinder to Munro and Bernstein in *Foreign Affairs*; and Ehsan Ahrari, writing in *Jane's Intelligence Review*, doubt that China can bring to fruition its military modernization plans. Indeed, as this

monograph points out, there are considerable economic, structural, and technological impediments restricting China's defense sector. However, it is prudent to plan on the likelihood that China will accomplish in the military realm what it has managed in some sectors of civil industry.

The example of Zhang Ruimin and the *Hai'er Group* is most instructive in this regard. Perhaps the most well-known and most reliable air conditioning systems, heating and refrigeration equipment made in China today come from *Hai'er*. In 1984, as the story goes, Zhang Ruimin took over a failing, collectively-owned refrigerator plant in China's industrial northeast and turned it into a stable, thriving, multinational enterprise selling what are arguably the best, most reliable products in the refrigeration sector in China with warranties, a network of repairmen, and parts and service guarantees that work. Zhang did this by starting out with serious quality control. He destroyed products that would not pass inspection and penalized his first-line managers for shoddy work. He also fired people that wouldn't produce. He added systems engineering and integration. Moreover, he instituted a warranty and ensured that there was a network of repairmen and spare parts to install and repair *Hai'er* products if there were malfunctions.⁵⁰

After cornering the air conditioner market in the northeast with the assistance of a Japanese joint venture partner, Zhang Ruimin expanded into other parts of China. Continuing the same warranty service and spare parts program, Zhang built *Hai'er* into one of the most successful companies in China.

In a competitive salary and market environment, what if Zhang Ruimin could be attracted into the military aircraft manufacturing industry? What happens if Zhang, or a manager like him, who understands management, quality control, a good work ethic, systems engineering, and quality service, takes over China's aircraft carrier project? We already know that someone like Zhang is in charge of the

short range and medium range ballistic missile program, mass-producing effective M-9 and M-11 missiles that can be armed with nuclear warheads. Some other very effective manager is producing sea and air-launched cruise missiles (C-801 and 802). Soon, with airborne data links, the PLA will master over-the-horizon targeting. When it does, the Chinese armed forces may not be a threat to the U.S. homeland, but the PLA will threaten deployed U.S. ground forces and U.S. naval battle groups. When China develops land-contour modeling cruise missiles like the U.S. Tomahawk, with a 1500-mile range, it will have a serious land attack capability.

When we think about China's military potential, we should really keep in mind just how quickly good management and leadership transformed one air conditioning company. It took Zhang Ruimin from 1984 to 1989. Japan took less than 3 years to produce an 8,900-ton amphibious assault ship capable of moving at 22 knots and transporting 330 troops. It is conceivable that China could do the same, given a good management team. The modernization and improvement of China's civil industry will have these kinds of spin-offs for the defense sector. Therefore, notwithstanding all of the obstacles China faces, China's military potential bears watching. It is not difficult to contemplate China's becoming a regional hegemonic power in the 21st century.

ENDNOTES

1. John M. Collins, *U.S. Defense Planning: A Critique*, Boulder, CO: Westview Press, 1982. This definition is taken from Collins' ideas on military power. Hans Morgenthau suggested eight components of national power, all of which may be analyzed as actual or potential: geography, natural resources, industrial capacity, military preparedness, population, national character, national morale, and diplomacy. Perhaps the best commentary on military potential comes from Samuel Griffith, the U.S. Marine Corps brigadier general who translated the works of the ancient Chinese strategist Sun Tzu into English. In a 1964 essay on the subject of China's military potential General Griffith told us that:

One need not labor the obvious fact that a nation's military potential in the contemporary age is a complex amalgam of many diverse elements. Among the most important are her size, terrain and environmental situation; her national philosophy; the number, character, standards of literacy and morale of her population; her natural resources; the capacity of her indigenous science, technology and industry to develop these resources advantageously; the quality of her leadership at directive levels; the viability of her alliances, the material and other assistance she receives from allies; her internal communications, her strategic doctrine, and size nature and quality of her armed forces, including their supporting requirements.

See also Hans J. Morgenthau, *Politics Among Nations: The Struggle for Power and Peace*, New York: Alfred A. Knopf, 1949, p. 74. See also Philip Towle, ed., *Estimating Foreign Military Power*, New York: Holmes and Meier, 1982; Klaus Knorr, *The War Potential of Nations*, Princeton: Princeton University Press, 1956; Oskar Morgenstern, Klaus Knorr, and Klaus P. Heiss, *Long Term Projections of Power: Political, Economic and Military Forecasting*, Cambridge, MA: Ballinger Publishing Co., 1973.

2. Klaus Knorr, *Military Power and Potential*, Lexington, MA: D.C. Heath and Co., 1970. In his preface, Knorr makes the point that "a nation's military potential varies with the forms and purposes of military power." Some states have great potential for the domestic use of power, while other states develop strength for external or international purposes.

3. For a useful discussion, see Alan R. Goldman and Gerald A. Halbert, "Will America Be Prepared for Its Next Peer Competitor?," Landpower Essay Series No. 98-1, Association of the United States Army, February 1998. These authors emphasize the importance of the Gross National Product (GNP) of a nation as an indicator of potential future power. As I argue in this paper, however, one must assess how a nation spends its GNP for defense, not only aggregate numbers. See also "Long Term Economic and Military Trends, 1950-2010," *A RAND Note*, Santa Monica, CA: RAND Co., 1989, pp. 4-32.

4. Klaus Knorr suggests that there are really three broad categories of factors that determine potential military power: economic capacity, administrative competence, and motivation for war. In the case of China, even if the motivation for war is low, one can safely speak of the motivation to use the armed forces as an instrument of national power. Knorr, *The War Potential of Nations*, pp. 40-42.

5. See Li Jijun, *Junshi Zhanlue Siwei [Strategic Thought]*, Beijing: Military Science Press, 1996, pp. 107-118; China's National Defense, Information Office of the State Council of the People's Republic of China, June 27, 1995; Joseph C. Anselmo, "China's Military Seeks Great Leap Forward," *Aviation Week and Space Technology*, May 12, 1997, p. 70.

6. The United States and China announced a de-targeting agreement similar to the agreement China already had with Russia during the Clinton-Jiang June 1998 summit in Beijing.

7. *China 2020: Development Challenges in the New Century*, Washington, DC: The World Bank, 1997, pp. 2-11. This figure is not accepted by all economists and conflicts with China's own growth estimates. The PRC's official estimates put GDP growth at 9.4 percent for that period, with higher growth in some sectors of the economy and lower growth in other sectors. Richard Cooper of Harvard University believes that Chinese figures are inflated, and that even the World Bank estimates may be too high.

8. Richard N. Cooper, "China into the World Economic System," September 1997, paper delivered at the Harvard School of Government, March 13, 1998.

9. Richard Bernstein and Ross H. Munro, "The Coming Conflict with America," *Foreign Affairs*, March/April 1997, pp. 19-20. See also Bernstein and Munro, *The Coming Conflict with China*, New York: A.A. Knopf, 1997.

10. David Shambaugh, "Chinese Hegemony Over East Asia by 2015," *The Korean Journal of Defense Analysis*, Summer 1997, pp. 7-28.
11. Denny Roy, "Hegemon on the Horizon? China's Threat to East Asian Security," *International Security*, Summer 1994, pp. 149-168.
12. Frances A. Lees, *China Superpower: Requisites for High Growth*, New York: St. Martin's Press, 1997, p. 40.
13. Nigel Holloway and Matt Forney, citing U.S. intelligence sources, write that "many feel that China could emerge as a large-scale regional threat to the U.S. within the next 20 years." Nigel Holloway and Matt Forney, "That 'T' Word Again," *Far Eastern Economic Review*, February 20, 1997, p. 18. I believe that we really must frame our concerns as addressing the *latent* nature of China's capabilities and intentions, not as a real threat. I am indebted to Professor Luo Renshi of the China Institute for International Strategic Studies, Beijing, China, for this characterization. During a series of conversations on the subject in Beijing between 1996 and 1997, Professor Luo used the concept of latent or potential threat, *qianzai de weixie*, to characterize how China and the United States tend to view each other. See also Kim Taeho, "A Reality Check: the 'Rise of China' and its Military Capability Toward 2010," *The Journal of East Asian Affairs*, Summer/Fall 1998, pp. 321-363; Joseph S. Nye, "China's Re-emergence and the Future of the Asia-Pacific," *Survival*, Winter 1997-98, pp. 65-79; and Stuart Harris and Gary Klintworth, eds., *China as a Great Power: Myths, Realities and Challenges in the Asia-Pacific Region*, New York: St Martin's Press, 1995.
14. A good example of the type of foresight exercised by strategic military planners is to examine the war plans of the United States in the 1920s and 1930s. The U.S. Navy began planning for a conflict with Japan as early as 1906, after the Russo-Japanese War. In the early 1920s, the war plans divisions of the War Department and the Navy Department drew up contingency plans for what they envisioned to be a two-theater world war fought in the Atlantic and the Pacific theater. In PLAN ORANGE, the Pacific Strategic War Plan, U.S. strategists theorized that there would be a war with Japan over resources and territory in the Pacific. In PLAN RED, the Atlantic Strategic War Plan, the strategists theorized that there would be a war with Great Britain. They did this because England was locked in a strategic alliance with Japan, the Anglo-Japanese Alliance of 1902, which was renewed and lasted until the Washington Conference of 1921-22. American planners thought that England's imperial reach would bring it into conflict with the US. Another contingency war plan they developed was the RED-ORANGE PLAN, which hypothesized a two-theater war, seeking

to win first in the Atlantic, against England, while fighting a holding battle in the Pacific, and then defeating Japan. When World War Two broke out, military and naval planners simply dusted off the old RED-ORANGE PLAN and substituted Germany for England in the Atlantic Theater. The broader strategy and the resources to carry it out, including defense construction and mobilization of reserves, was essentially the same. The main point to be learned here is that a theoretical planning construct does not make an enemy of a country. England made a strategic policy choice at the Washington Conference, deciding to cast its lot with the United States, and turned out to be a close ally by the late-1930s. But the RED-ORANGE PLAN stayed on the U.S. Joint Army-Navy Board's agenda through 1939. Contingency planning prepares forces and a nation for potential threats. China need not necessarily worry that it is often treated as a potential "peer competitor" by the United States, and the United States should not be surprised that, when China's strategists try to build a credible military force for the future, the United States is used for planning purposes as the most technically advanced and formidable potential opponent. See Erik Goldstein and John Maurer, eds., *The Washington Conference, 1921-1922: Naval Rivalry, East Asian Stability and the Road to Pearl Harbor*, Portland, OR: Frank Cass and Co., 1994; Edward S. Miller, *War Plan Orange: US Strategy to Defeat Japan, 1897-1945*, Annapolis, MD: Naval Institute Press, 1991.

15. Zhang Guochu, "Jiaqiang guofang he jundui jianshe shi guojia anquan he xiandaihua jianshe de jiben baozhang," [Strengthening National Defense and Military Construction are the Basic Guarantees of National Security and Modernization Construction], *Qiu Shi* No. 1, 1998, p. 24. A good discussion of China's modernization efforts in English may be found in Joseph C. Anslemo, "China's Military Seeks a Great Leap Forward," *Aviation Week and Space Technology*, May 12, 1997, pp. 68-71.

16. The "Four Modernizations" are agriculture, industry, science and technology, and defense. Zhou Enlai first called for the emphasis on the Four Modernizations at the Fourth National People's Congress in January 1975, when Deng Xiaoping was made chief of the general staff of the PLA.

17. Jiang Zemin, "Gaoju Deng Xiaoping Lilun Weida Qizhi, ba Jianshe you Zhongguo Tesi Zhehui Zhuyi Shiye Quanmian Tuixiang 21 Shiji" [Hold high the great banner of Deng Xiaoping theory for an all-around advancement of the cause of building socialism with Chinese characteristics into the 21st century], a speech at the 15th Party Congress, September 9, 1997, in *Qiu Shi* No. 18, October 1997, pp. 2-23.

18. Review: *Far Eastern Economic Review*, March 26, 1998, pp. 70-71.

19. Yeh Chang-Mei, "Reform of State-Owned Enterprises in Mainland China Since the CCP's Fifteenth Congress," *Issues and Studies*, May 1998, pp. 52-78.

20. Knorr, in *Military Power and Potential*, reminds us that some states produce military strength for domestic use. For the reasons outlined, China is one of these states.

21. The recent actions by the central government to sell bonds or stock shares to the employees of state-owned enterprises is an effort to recapitalize the companies that may not be successful. Some SOEs are operating on direct foreign investment, but most operate today on loans from state banks that cannot be repaid. The bank funds come from the deposits of Chinese citizens, who maintain one of the highest savings rates in the world. Should there be a run on the Yuan accounts of China's savers, spurred perhaps by inflation or an attempt to redeem the bonds because of a lack of confidence in the bonds, it would be a disaster for China. The state banking system of China is engaged in an elaborate shell game, but there may not be a pea under any of the shells. China's central leadership is buying its time with the money of its citizens in a gamble that the SOEs can be made to work.

22. *China 2020*, pp. 26-29; Ian Johnson, "Eco-Threats: Redefining National Security—China's New Containment Policy: Fighting the Rise of Megacities," *The Wall Street Journal*, December 11, 1997, p. A-20.

23. *Ibid.*, Johnson, *The Wall Street Journal*, p. A-20; Sen-dou Chang, "The Floating Population: An Informal Process of Urbanization in China," *International Journal of Population Geography*, Vol. 2, 1996, pp. 197-214.

24. There are also success stories in the conversion of SOEs to civil production. In the Mianyang area, along a corridor north of Chengdu, Sichuan Province, I visited a number of former "third-line" industries from the electronics and nuclear industries that have been successfully converted to civil production. Some of these plants manufacture motorcycles and parts, others consumer electronics. These are small industries, however; it is the giants like Capital Iron and Steel and those in the "rust-belt" of Manchuria that create the largest drains on the economy.

25. *The Economist*, September 13, 1997, pp. 23-26; *China Engaged: Integration with the Global Economy*, Washington, DC: The World Bank, 1997, pp. 2-17; *China 2020*, pp. 26-29, 154, 157.

26. The *Varyag* was purchased through a Macao holding company, allegedly as a floating hotel or casino. More recently, South Korea, which had bought the *Minsk* from the Russian Far East Fleet for scrap value, sold the ship to China, also for scrap. Beijing does not need the steel. Its naval engineers are more interested in studying the engineering of these ships. Nikolay Novichko, "Russian Arms and Technology Pouring Into China," *Aviation Week and Space Technology*, May 12, 1997, pp. 72-73; Michael G. Forsythe, "The Navy That Almost Was," *Naval Institute Proceedings* April 1997, pp. 51-53. Forsythe's historical piece is useful in understanding the bureaucratic structures that restricted China's naval buildup from the 1870s to the 1890s. Taken with what China is buying from Russia today, the lesson is that China's navy cannot necessarily absorb and operate what it purchases.

27. See *Qiu Shi*, No. 6, March 16, 1998, which carries an article by Chief of the PLA General Staff Department General Fu Quanyou. Fu emphasizes the need for the PLA to work to apply high technology, "especially information technology," to future warfare. He stressed the application of simultaneous combat power from the sea, air, and land, combined with the electronic means to manage a joint battle. See also *Jiefangjun Bao*, October 11, 1995, p. 1, where two PLA reporters, Ren Yanjun and Zhang Zhanhui, discuss an exercise in Lanzhou Military Region. Quoting Deputy Chief of the General Staff Department General Wu Quanshu, the two reporters discuss how the PLA is concentrating on electronic warfare, information warfare, and the application of firepower to use existing weaponry to defeat opponents. By the end of the exercises in the Taiwan Strait, which took place in March 1996, PLA leaders assess their ability to conduct "high technology combined campaigns by...concentrating on the enemy's vital, weak parts, interfering with and sabotaging the enemy's command and telecommunications system; and disrupting the enemy's deployments." See *Jiefangjun Bao*, April 30, 1996, p. 6. On the assimilation of Russian equipment, see Dennis Blasko, "Evaluating Chinese Military Procurement from Russia," *Joint Force Quarterly*, Autumn/Winter 1997-98, pp. 91-96. Blasko concludes that China will avoid a prolonged military conflict while working to exploit the application of technology to warfare. For useful discussions of asymmetry in warfare, see T.V. Paul, *Asymmetric Conflicts: War Initiated by Weaker Powers*, Cambridge: Cambridge University Press, 1994; Lloyd J. Matthews, ed., *Challenging the United States Symmetrically and Asymmetrically: Can America Be Defeated?*, Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 1998.

28. Information Office of the State Council of the People's Republic of China, *China's National Defense*, Beijing, July 27, 1998, pp. 25-28.

29. Except for the "self-strengthening" movement of the late 19th century and short period in the 15th century when the fleets of Zheng He plied the South China Sea and the Indian Ocean in search of trading ports. More on this later, but Zhang He made seven voyages between 1405 and 1433. He sailed with fleets larger than those of the Spanish Armada, sometimes up to several hundred ships, with 15,000 combat troops embarked. This can hardly be seen as a simple trading mission. John Fairbank King, *China: A New History*, Cambridge: Harvard University Press, 1992, pp. 1137-139; Edward Dreyer, *Early Ming China: A Political History, 1355-1435*, Stanford: Stanford University Press, 1982; J.V.G. Mills, *Ma Yuan: The Overall Survey of the Ocean's Shores*, London: Cambridge University Press, 1970.

30. Jiang Zemin, "Gaoju Deng Xiaoping Lilun," p. 9.

31. David B. Ottaway and Dan Morgan, "China Pursues Ambitious Role in Oil Market," *The Washington Post*, December 26, 1997, pp. 1, A35. See also Dianne Smith, *The New Great Game in Central Asia*, Carlisle, PA: U.S. Army War College, Strategic Studies Institute, 1996.

32. See Review: *Far Eastern Economic Review*, February 26, 1998; James P. Dorian, Brett Wigdortz and Dru Gladney, "Central Asia and Xinjiang, China: Emerging Energy, Economic and Ethnic Relations," *Central Asian Survey*, Vol. 16, No. 4, 1997, pp. 461-486.

33. As Army Attaché in Beijing, China, I heard this theme repeated by Chinese generals and strategic thinkers between 1995 and 1997. It was reinforced for me in meetings at the Academy of Military Science during an August 1998 visit to China.

34. China's sensitivity about Mongolia dates back to the Yalta Conference, which, according to Deng Xiaoping, "divided up China." Deng told President Bush in 1989 that "Yalta not only severed Outer Mongolia from China, but also brought the northeastern part of China into the Soviet sphere." See the conversation between President Bush and Deng in George Bush and Brent Scowcroft, *A World Transformed*, New York: Alfred A. Knopf, 1998, pp. 94-95.

35. One of the best discussions of how to selectively import and employ new, foreign technology within the limitations of the PLA's capabilities to absorb it is in Qin Yaiqi, ed., *Deng Xiaoping Xin Shiqi Jundui Jianshe Sixiang Gailun* [An Outline of Deng Xiaoping's Thought on Military Building for the New Period], Beijing: PLA Press,

1991. See especially the section on importing new technologies, pp. 98-107.

36. For a series of translations accessible to those who do not read Chinese, see Michael Pillsbury, ed., *Chinese Views of Future Warfare*, Washington, DC: National Defense University Press, 1997. For a detailed treatment in Chinese, see Li Jijun, *Junshi Zhanlue Siwei* [Strategic Thought], Beijing: Military Science Press, 1996; Chen Liheng, et. al., *Junshi Yuce Xue* [Military Forecasting], Beijing: Military Science Press, 1993; Yue Shuiyu, *Sunzi Bingfa yu Gao Jishu Zhanzheng* [Sunzi's Military Thought and High Technology Warfare], Beijing: National Defense University Press, 1998; Xu Yongzhe, *Gao Jishu Zhanzheng Houqin Baozheng* [Guaranteeing Logistics in High Technology Warfare], Beijing: Military Science Press, 1995; Zhu Youwen, *Gao Jishu Tiaojian xia de Xinxi Zhan* [Information Warfare under High Technology Conditions], Beijing: Military Science Press, 1998.

37. Anselmo, pp. 68-72.

38. China's performance in that invasion is discussed in King C. Chen, *China's War with Vietnam, 1979: Issues, Decisions and Implications*, Stanford, CA: Hoover Press Publication, 1987. See also Harlan W. Jencks, *From Muskets to Missiles*, Boulder: Westview Press, 1982.

39. China's strategic thinkers argue that the United States is creating a "China Threat" to sow dissension between China and its neighbors. See Li Haibo, *Beijing Review*, March 24-30, 1997, p. 4. See also Holloway, p. 18.

40. The concept of hegemony is defined in *Webster's Third International Dictionary*, 1971 edition, as "a predominant influence or authority, especially of a government or a state." This definition is adapted slightly in an article by David Shambaugh to include leadership, as exercised by a powerful state. See David Shambaugh, "Chinese Hegemony over Asia by 2015?," *The Korean Journal of Defense Analysis*, Summer 1997, pp. 7-28. The concept of hegemony as a concrete description of international power and relations, and as a tenet of American foreign policy, is discussed by Richard Haass in *The Reluctant Sheriff: The United States After the Cold War*, Washington, DC: The Council on Foreign Relations, 1997. See also Brian Urquhart, "Looking for the Sheriff," *The New York Review of Books*, July 16, 1998, pp. 48-53; Robert Keohane, *After Hegemony: Cooperation and Discord in the World Political Situation*, Princeton: Princeton University Press, 1984; and Edward Luttwak, *Strategy: The Logic of War and Peace*, Cambridge:

The Belknap Press, 1987. The term hegemony in Chinese, *Bachuan*, as distinct from "hegemonism" *bachuan zhuyi*, does not have the same connotations as in English. It relates to authoritarian control and coercion, obtained by strength and, if necessary, force of arms. Luttwak's discussion of "armed persuasion" on pages 109-207 of *Strategy: The Logic of War and Peace* corresponds more to the meaning of the term in Chinese. Another good discussion of how China applies power and force in a hegemonic sense is in Scott A. Boorman, *The Protracted Game: A Wei-Ch'i Interpretation of Maoist Revolutionary Strategy*, London: Oxford University Press, 1969. The United States uses the term "hegemon" to describe the sort of coercive, despotic, and authoritarian power that ought to be avoided in international relations. See *A National Security Strategy for a New Century*, Washington, DC: The White House, 1997; and *National Military Strategy of the United States of America—Shape, Respond, Prepare Now: A Military Strategy for a New Century*, Washington, DC: Joint Chiefs of Staff, 1997.

41. This really is the meaning of "hegemony." The best description of how China uses its latent military power is in Scott A. Boorman, *The Protracted Game: A Wei-Ch'i Interpretation of Maoist Revolutionary Strategy*, London: Oxford University Press, 1969.

42. Christopher D. Yung, *People's War at Sea: Chinese Naval Power in the Twenty-First Century*, Alexandria, VA: Center for Naval Analyses, March 1996.

43. On the acquisition of the carrier from Ukraine, see Bruce Gilley, "Scrap Value: Buyers of an Unfinished Ukrainian Carrier Have China Ties," Review: *Far Eastern Economic Review*, April 9, 1998, from web site <http://www.feer.com>, April 9, 1998. This is a fascinating story because in 1997, at a diplomatic reception in Beijing, a Chinese gentleman claiming to represent a Macao holding company, Chin Luck, approached me to inquire about whether any U.S. carriers were available for purchase to be used as a gambling casino. After I explained that all of the U.S. carriers were employed, the gentleman sought out the British, Russian, and Ukrainian military attaches. See also "Ex-Russian Carrier Turns Up in China," *European Stars and Stripes*, September 3, 1998, p. 16.

44. Yung, *People's War at Sea: Chinese Naval Power in the Twenty-First Century*, pp. 25-26.

45. *Forecast International*, August 1997, Market Overview—China, pp. 2-6.

46. Several authors cogently make these points. Historically, China has had a difficult time dealing with innovation. See John King Fairbank, *China: A New History*, Cambridge: The Belknap Press of Harvard University Press, 1992, especially part two, which deals with "the paradox of growth without development." See also Kenneth G. Lieberthal, *Governing China: From Reform Through Revolution*, New York: W.W. Norton and Co., 1995; Kenneth G. Lieberthal and Shuen-Fu Lin, *Constructing China: The Interaction of Culture and Economics*, Ann Arbor: Michigan Monographs in Chinese Studies, 1998; and John Bryan Starr, *Understanding China*, New York: Hill and Wang, 1997, especially Chapter II, "Patterns from the Past," pp. 42-57.

47. Jim Mann, *Beijing Jeep: How Western Business Stalled in China*, Boulder, CO: Westview Press, 1997. See also Evan S. Medeiros, "Revisiting Chinese Defense Conversion: Some Evidence from the PRC's Shipbuilding Industry," *Issues and Studies*, May 1998, pp. 79-101.

48. See Larry M. Wortzel, "United States Export Controls and the Modernization of China's Armed Forces," in Larry M. Wortzel, ed., *China's Military Modernization: International Implications*, Westport, CT: Greenwood Press, 1987, pp. 159-192; Larry M. Wortzel, "China Pursues Great Power Status," *ORBIS*, Spring 1994, pp. 157-176.

49. See Fang Lizhi, *Bringing Down the Great Wall: Writings on Science, Culture and Democracy in China*, New York: W.W. Norton, 1992; Martin Schoenhals, *The Paradox of Power in a PRC Middle School*, Armonk, NY: M.E. Sharpe, 1993; Peter S.N. Lee, *Industrial Management and Economic Reform in China*, London: Oxford University Press, 1987. As assistant U.S. Army Attaché to China, I was the escort for the Defense Science Board delegation to the Changxindian Armored Vehicle Factory in 1989, and also visited the factory in 1996 and 1997. My interview with the U.S. aircraft industry representative took place in September 1998, in Virginia.

50. Zhang Ruimin and the Haier Group are profiled in *Southern Weekend*, November 14, 1997; see <http://www.chinabig.com/cbig/en/reference/entr-11.html>